

view of ordinary skill in the art. Applicant respectfully traverses the rejections to pending claims 1-11 and 13 for at least the following reasons.

First, Nagate does not teach, suggest, or disclose plates of the same number as the magnets, as recited in claim 1. The Office Action contends that "Nagate et al discloses magnet pole position detector comprising plates 8a of the same number as the magnets 11...". (Emphasis added.) Applicant respectfully disagrees and submits that a rotor magnetic pole portion 8a is not a plate. A rotor magnetic pole portion 8a refers to a long structure (long in an axial direction parallel to the rotatable shaft 7) that protrudes outward in a radial direction, as shown in Fig. 3, and is comprised of "many steel plates laminated," as disclosed in col. 7, lines 61-62 and shown, e.g., in Fig. 1. A rotor magnetic pole portion 8a, which is a portion of the rotor 8, is not itself a plate, for at least two reasons: a) it is integrally connected by the same material and structure to all other rotor magnetic pole portions 8a; and b) it is comprised of many laminated steel plates.

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Further, it may be argued that rotor end face 8b comprises only one laminated steel plate (the steel plate on the far left side of rotor yoke 10, as shown in Fig. 1) and, therefore, is a plate. However, there is only one rotor end face 8b, which is not the same number (four) of field permanent magnets 11 (as shown, e.g., in Fig. 2). Further, a portion 8a of the rotor end face 8b (which has four portions 8a, as shown in Fig. 2) is not itself a plate. Even a very broad interpretation of the word "plate" does not include a small portion of another plate, particularly where a quantity of plates is at issue.

Because Nagate discloses approximately 27 laminated steel plates comprising the rotor 8 (as shown, e.g., in Fig. 1), which is not the same number (four) of field permanent magnets 11, Nagate does not teach, suggest, or disclose plates of the same number as the magnets.

Second, Nagate does not teach, suggest, or disclose that the detector comprises plates, as recited in claim 1. In Nagate, it is the flux directly created by field permanent magnets 11 (or, in an alternative embodiment, magnet piece 17, as disclosed in col. 17, lines 13-48) that is detected by magnetic sensor 16. In the present application, plates 25, which are magnetized by magnets 15, play an important

role in creating the characteristic detection signal shown in Fig. 4C. Therefore, in the present application, plates 25 are a part of the detector. However, Nagate does not disclose that rotor magnetic pole portions 8a (or its constituent laminated steel plates) play any role whatsoever in the detection by magnetic sensor 16, and therefore are not a part of the detector (or detection system) of Nagate.

Third, Nagate does not teach, suggest, or disclose that the plates are made of a magnetic material, as recited in claim 1. In many places in the reference, Nagate discloses that the plates which form the rotor yoke 10 of the rotor 8 are made of steel (see, e.g., col. 7, line 62, col. 8, line 21, and col. 17, line 24), but fails to disclose whether or not the steel is of a magnetic or nonmagnetic type. In sharp contrast, Nagate specifically discloses that plate 8c, made of stainless steel, is nonmagnetic, and that piece 17 is magnetic, but does not mention whether or not the laminated steel plates which form the rotor yoke 10 are magnetic or made of a magnetic material.

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Fourth, Nagate does not teach, suggest, or disclose that the plates are magnetized by leakage flux of the corresponding magnet, as recited in claim 1. If, for example, the laminated steel plates are made of nonmagnetic stainless steel (a possibility that is not precluded by the disclosure of Nagate), then they could not be magnetized at all. Further, the only leakage flux disclosed by Nagate is that which "is leaked outside from the rotor end face 8b" (col. 10, lines 54-55), and corresponds to W₁ and W₂ in Fig. 3 (not W₀, which is used to spin the rotor 8). However, neither W₁ nor W₂ magnetizes any plates. In fact, Nagate suggests attaching a nonmagnetic plate 8c to the rotor end face 8b in order to reduce or smooth the flux leaking out to magnetic sensor 16.

? see Fig. 3

None of the cited references cures the deficiencies of Nagate. Therefore, claim 1, and all claims dependent thereupon, are believed to be patentable over Nagate.

Applicant believes that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

Respectfully submitted,

Date

1/24/02

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APPENDIX A

VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the Claims:

13. (Amended) The magnet pole position detector as in claim [12] 1,
wherein the magnetic sensor comprises three sensors that are positioned at
approximately 30-degree intervals.